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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/927,946	08/10/2001	Bradley C. Squires	061300-0225	5405

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EXAMINER

BROADHEAD, BRIAN J

ART UNIT	PAPER NUMBER
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3661

DATE MAILED: 12/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/927,946

Applicant(s)

SQUIRES ET AL.

Examiner

Brian J. Broadhead

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 4-10, 13-18, 21-27, 29, 30, 32, 33, 34, 35, 36, 37, 38, and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Rado et al., 5508689.

As per claims 1, 2, 4, 5, 6, 13, 14, 15, 16, 17, 18, 27, 29, 30, 32, 33, 34, 36, 37, 38, and 39, Rado et al. discloses determining the desired input and output states of a plurality of input and output devices based on stored IO data on line 30, on column 4; and a plurality of interface modules that collect and distribute data over a network, distribute power, and are throughout the vehicle on lines 44-48, on column 5; the interface modules set the outputs according to the inputs and maintaining IO data by exchanging the IO status between all of the interface modules on lines 35-45, on column 8; broadcasting the IO data and storing it in all the interface modules on lines 41, on column 8; a power source in figure 1 (the battery); a power transmission link (24); a plurality of input devices (20); a plurality of output devices (18); a communication network (26); a plurality of interface modules (16) coupled to the power link and communication link and respective output and input devices via a dedicated link all clearly visible in figure 1; a microprocessor-based control unit (30) with a control program and microprocessor; figure 1 shows the plurality of the interface modules at the

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front location and rear location and that they are locally disposed to their input and output devices; wherein microprocessor-based control unit is an additional interface module capable of serving as master interface module on lines 10-22, on column 6; and wherein plurality of interface control modules are capable of serving as replacements and are dynamically reconfigurable on lines 23-29, on column 6; a respective one of plurality of interface modules includes a respective control program that is executable by a respective microprocessor of each said respective interface module and wherein each said respective interface modules executes said respective control program to control a respective subset of said plurality of output devices based on input status information on lines 39-48, on column 1; a plurality of input and output devices on line 30, on column 4; and a plurality of interface modules that collect data, distribute power, and are throughout the vehicle on lines 44-48, on column 5; it is inherent that the interface modules configure themselves according to where they are located because they are generic modules with various different inputs and outputs connected to them. If they didn't configure themselves there would be no way for the control system to control the vehicle. It is also inherent that the variant modules will configure themselves and the system will configure itself according to what variant modules are installed. The variant modules contain the interface modules and if the configure themselves the variant module has been configured. There must inherently be software that configures these modules. The modules all have microprocessors that run on some type of firmware. Since these are generic modules they must contain the firmware necessary to run any outputs/inputs dependant on where they are installed.

As per claims 7 and 10, Rado et al. discloses that the interface modules are interchangeable, substantially the same programmed, substantially the same the same firmware and operating system on lines 23-30, on column 6.

As per claims 8, 9, and 21, Rado et al. discloses a chassis and variant modules, said variant module providing first type of functionality, said variant modules being removable and replaceable with other variant modules to form vehicle with other different types of functionality on line 2 on column 2, and lines 1-8, on column 3.

As per claim 22, Rado et al. discloses the control signal is in the form of a binary signal having an on and off state with power being on the on state and power being off the off state on line 63, on column 8. The turn signal is an output with binary control.

As per claims 23, 26, and 35, Rado et al. discloses a power source in figure 1 (the battery); a power transmission link (24); a plurality of input devices (20); a plurality of output devices (18); a communication network (26); a plurality of interface modules (16) coupled to the power link and communication link and respective output and input devices via a dedicated link all clearly visible in figure 1; a microprocessor-based control unit (30) with a control program and microprocessor; figure 1 shows the plurality of the interface modules at the front location and rear location and that they are locally disposed to their input and output devices; wherein microprocessor-based control unit is an additional interface module capable of serving as master interface module on lines 10-22, on column 6; wherein plurality of interface control modules are capable of serving as replacements and are dynamically reconfigurable on lines 23-29, on column 6; a chassis and variant modules, said variant module providing first type of

functionality, said variant modules being removable and replaceable with other variant modules to form vehicle with other different types of functionality on line 2 on column 2, and lines 1-8, on column 3; controlling a first and second output device by transmitting an input signal from an input device to a first interface module over a dedicated communication link, transmitting said input from first interface module to a control module, processing input signal and in response generating a first control signal, transmitting control signal to second interface module, transmitting control signal via a second dedicated link to an output device all on lines 15-65, on column 7; and determining based on status of vehicle that output device must be disengaged and causing the device to disengage by transmitting a second control signal from said control unit to first interface module, transmitting said second control signal from first interface module to second output device by way of third dedicated communication link causing the output status to change status on lines 3-65, on column 8.

As per claim 24, Rado et al. discloses that the mating connectors are standardized and able to be used with other variant modules on line 60, on column 3.

As per claim 25, Rado et al. discloses the interface modules are interchangeable with interface modules used by other variant modules on lines 20-25, on column 4.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rado et al., 5508689, in view of Vos, 5819188.

Rado et al. discloses all the limitations as set forth above. Rado et al. does not disclose that the control program has logic to control outputs when some of the inputs are in an undetermined state. Vos teaches of a control system to control outputs when an input is in an undetermined state on lines 60-62, on page 2. Vos also teaches that the control system can be reconfigured to reliably detect component failures and minimize the detected failure. This would include providing assuming one state of the input for a first output device and a second state for a second output device. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the control system of Vos in the invention of Rado et al. because such modification would minimize detected failure.

1. Claims 3, 19, 20, 28, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rado et al., 5508689, in view of Kamen et al., 6223104.

2. Rado et al. discloses all the limitations as set forth above. Rado et al. does not disclose the broadcasts occur asynchronously. Rado et al. does disclose that a network mode protocol is used to communicate between the modules on lines 48-50, on column 7, but they do not disclose what protocol is to be used. Kamen et al. teaches of using asynchronous communication on lines 20-25, on column 4. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the communication of Kamen et al. in the invention of Rado et al. because such

modification would provide a redundant system architecture as stated on lines 9-11, on column 1 of Kamen et al.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
4. Wong et al., 5957985, discloses fault resilient automobile control system.
5. Windle et al., 4809177, discloses multiplexed electrical wiring system for a truck including driver interface and power switching.
6. Kojiima, 5754021, discloses load control system for vehicles.
7. Kitagawa et al., 5416702, discloses vehicle electrical load limiting apparatus.
8. Symanow et al., 5999104, discloses method or producing customizable automobile electronic systems.
9. Sugimoto et al., 5623169, discloses electrical wiring harness structure for vehicle.
10. Rigsby et al., 5739592, discloses power and communications link between a tractor and a trailer.
- 11.** DiLullo et al., 5025253, discloses system and method for remotely monitoring the connect/disconnect status of a multiple part vehicle.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Broadhead whose telephone number is 703-308-9033. The examiner can normally be reached on Monday through Thursday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William A. Cuchlinski can be reached on 703-308-3873. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

BJB
December 15, 2002

Jacques H. Louis-Jacques
JACQUES H. LOUIS-JACQUES
PRIMARY EXAMINER